DOCUMENT RESUME

ED 220 504 TM 820 518

AUTHOR Crane, Laura R.; And Others
TITLE Measurement of Evaluation Utilization: Preliminary Results.
PUB DATE Mar 82
NOTE 40p.; Paper presented at the Annual Meeting of the American Educational Research Association (66th, New York, NY, March 19-23, 1982).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Compensatory Education; Decision Making; Elementary Secondary Education; Factor Structure; *Information Utilization; *Models; *Program Evaluation; *Test Construction
IDENTIFIERS *Elementary Secondary Education Act Title I; *Evaluation Utilization

ABSTRACT

Based on Leviton and Hughes' conceptualization of variable clusters that affect evaluation utilization, a procedure for measuring utilization potential was developed. Five clusters of variables are consistently related to utilization: relevance, credibility, communication, information processing, and user involvement and advocacy. The communication and information processing factors were combined for this study. To relate the four remaining factors to decision-making within the context of Title I programs, Title I decision areas were identified. They include fund allocation, program adoption or change, staffing, student selection, and test selection. The generation of items for the pilot instrument was a multistage process involving Title I Technical Assistance Centers across the country. From the several hundred items generated, a 65-item pilot instrument was developed and pilot tested. Maximum likelihood factor analysis using a subset of items revealed a set of correlated factors related to Leviton and Hughes' conceptualization. The exploratory factor analysis results were not confirmed on a second sample, but this may have been due to small sample sizes. This research indicates that the possibility of developing a scale to assess utilization potential is very real. (Author/BW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED220504

MEASUREMENT OF EVALUATION UTILIZATION
Preliminary Results

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

S. Kandaswamy

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Laura R. Crane
Richard W. Naccarato
Educational Testing Service
Midwestern Regional Office
Evanston, Illinois

Subramanian Kandaswamy
Bell & Howell
Chicago, Illinois

TM 820 518

Paper presented at the annual meeting of the American Educational Research Association, New York, March 1982.

Introduction

During the 1970s there was considerable focus on evaluation utilization and many articles began to appear on this topic. More recently, several analytic reviews have appeared (e.g., Haenn, 1980; Hansen, Martin and Oxford, 1979; Leviton and Hughes, 1981). The reviews all attempted to identify clusters or "utilization factors" and involved at least two and usually three or more levels of factors with each major factor divided into subfactors.

The three reviews mentioned here had a fair amount of overlap in terms of references, but approached the task through somewhat different perspectives. The review by Haenn was considered in the context of school district utilization; the Hansen et. al. review was considered in the context of Title I evaluation. The Leviton and Hughes review considered utilization in a much broader context, not restricted to school related environments. Additionally, the Leviton and Hughes paper devoted considerable attention to the definitional and methodological problems inherent in research on evaluation utilization.

Much of the research on utilization has, of necessity, relied on the use of interviews (e.g., Caplan, 1977; David, 1978) and intensive case studies (e.g., Alkin, et. al., 1979; Patton, 1978) and questionnaires. Leviton and Hughes cite four major problems these techniques have with respect to utilization research: 1) "...it is difficult to document that utilization occurs, because evaluations are frequently used informally...," 2) "demonstrating that change, at any level, was caused at least in part by evaluations...," 3)"...the question of base rates for comparison. Until recently, we believed the base rate for utilization was very low. We are learning that the fault may lie with our measures...," and 4)

"...the unit of analysis: What is an instance of utilization? It is necessary to quantify utilization if we are to show that it can be enhanced." (Leviton and Hughes, p. 533). Although not a methodological problem per se, one might also add cost considerations as a problem with interview and case study approaches to research on utilization.

Given the methodological problems inherent in much of the utilization research, one might ask the question: Is there any way of developing a scale that would measure utilization directly? The answer is probably in the negative, but it might be possible to develop a scale that would measure "potential" for utilization where the higher the potential the more likely it is that utilization occurs. Working within the utilization conceptual framework developed by Leviton and Hughes, this paper reports preliminary results of a pilot study designed to develop such an instrument. Briefly described in the next section are the five clusters (hypothetical factors) conceptualized by Leviton and Hughes.

Hypothetical Factors

Leviton and Hughes identified five clusters of variables that seemed consistently related to utilization. The five clusters are: 1) Relevance, 2) Credibility, 3) Communication, 4) Information Processing and 5) User Involvement and Advocacy. Each of these is briefly discussed below.

Relevance. The primary concern of this category is whether the evaluation meets the user's needs. This is viewed as essential to utilization. Relevance assumes that the evaluation answers the necessary questions or measures goals that are viewed as important by users. One variable within this cluster is timeliness: the need to have evaluation results in time

for consideration before key decisions are made.

Credibility. Credibility of the information and the information producer also affects utilization. Credibility of evaluation as it is compared to alternative available sources of information, preconceptions or biases of users toward research, trust in the research, and perceived quality of the information are some aspects of credibility that affect utilization.

Communication. Another category of variables is broadly referred to as communication. The pertinent variables included are associated with communication as it occurs within the bureaucratic hierarchies where the evaluation is focused. Important to utilization is the frequency of contact between the producers of the evaluation and the potential users. Also important is the existence of networks in the bureaucratic hierarchy which assure that, during dissemination, valuable information is not left out or distorted.

Information Processing. Information processing refers to the importance of translating evaluation findings into specific implications. Evaluations must be structured to answer specific questions, and they should be clear in terms of their goals and objectives. The information processing style of the administrator (user), generally different from the evaluator's style, has implications for utilization. Evaluations should be presented in a style familiar to the user.

User Involvement and Advocacy. User involvement and advocacy are variables of a political nature. Utilization is affected by the level

of interest and commitment of decision makers to the process of evaluation as well as to the program being evaluated. The direction of the evaluation results, i.e., whether or not they support the advocate's position, will impinge upon utilization.

Four Factors. For our purposes, it was felt that the "Information Processing" cluster or factor had considerable overlap with the "Communication" factor and we elected to combine the two factors. Our interest was in the development of a scale that would assess utilization potential within the context of Title I decision-making. Using the conceptual framework developed by Leviton and Hughes, reduced to four factors: 1) Relevance, 2) Credibility, 3) Communication, and 4) User Involvement and Advocacy we believed such a scale could be developed. To relate the instrument to decision-making, Title I decision areas were identified as discussed in the next section.

Decision Areas

Within Title I, at least five areas were identified where school district personnel made decisions. These areas were: 1) fund allocation, 2) program adoption or change, 3) staffing, 4) student selection, and 5) test selection. Evaluation has the potential for informing administrators making decisions in each of these areas as described below.

Fund Allocation. School administrators are always making decisions concerned with funding. In a Title I context, such decisions might be concerned with how funds should be allocated to different projects (e.g., reading and math projects).

Program Adoption or Change. Decision-making in this area is concerned with selection of a program best meeting the needs of students served or

with how an operating program might be improved. Which program will best serve the needs of students? Would increasing time spent in drill improve the program? These are example questions that imply decisions required in the area of program adoption or change.

Staffing. Staffing decisions might include deciding what staffing pattern is required, deciding which staff should participate or what staff training is necessary to successfully implement or operate a program.

Student Selection. Deciding which students should participate in a program is an obvious decision that must be made. Perhaps more crucial in this area is deciding what selection process should be implemented.

Test Selection. Deciding on a testing program that serves multiple purposes can involve many decisions. For example, "Does a test accurately reflect program goals?" or "Should out-of-level testing be used?" Are questions which need to be considered when test selection decisions are being made.

Summary of Decision Areas. The decision areas briefly discussed in this section are only a few of the areas where school district administrators make decisions. The five areas--fund allocation, program adoption or change, staffing, student selection, and test selection were discussed in this section because these areas are general across school districts and Title I.

Method

Development of the Instrument

The generation of items for the pilot instrument was a multistage process involving Title I Technical Assistance Centers (TACs) across the country. Each TAC received a concept paper describing the "factors" and our approach to developing items, a brief description of the "factors" and a matrix showing the five decision areas within which Title I decision-making was likely to occur (the brief description and matrix are in Appendix A). Each TAC was asked to develop items for each decision area within two "factors."

From the several hundred items generated, after categorizing and editing, a sixty-five item pilot instrument was developed. This instrument was reviewed by state and local school district staff and by TAC staff. Based on reviewer comments, additional editing was done before a final pilot instrument was distributed.

The pilot instrument requested respondents to rate each of the sixty-five items on two dimensions--the degree to which the described condition existed in the district and the importance of the condition. Both ratings were done on five point scales with a "1" indicating little existence (or importance) and a "5" indicating considerable existence (or importance). Although the instrument was very lengthy, all items were retained for pilot testing with the intent of reducing the instrument to about thirty items in its final form.

Sampling

Three states agreed to allow pilot testing of the instrument. From lists of school districts having a Title I pupil enrollment of at least

100, random samples of 100 districts per state were drawn. Each state sample was then randomly split into two samples (I and II) of size 50. Sample I instruments requested respondent identification (name, business address and telephone number) while Sample II instruments did not request respondent identification. Both instruments had a page requesting background information (position, number of years in Title I, highest degree earned, grade levels served by Title I programs, and appriximate number of children served in Title I programs). A comparison of Sample I and Sample II responses on the background information is given in Table 1. A total of 223 instruments were returned, 114 from Sample I districts and 109 from Sample II districts indicating a slightly higher return rate from the "respondent identification" Sample I districts. Across both samples the district median number of pupils served in Title I reading programs was 140 and the median number served in Title I math programs was 75.

Phase I Analyses

Each item was classified according to the hypothetical factor for which it had been developed--Relevance (R), Credibility (Cr), Communication (Co), and User Involvement (UI). Reliabilities were computed for each hypothetical factor separately for the existence (ES) and Importance (IS) scales. Results of these analyses are shown in Table 2. As shown in Table 2, the hypothetical factor reliabilities were quite respectable (minimum of .81).

Factor analytic techniques were then applied separately to each scale, a "very simple structure" (VSS) analysis was done (Revelle and Rocklin, 1979). Results of these analyses were used to specify parameters for maximum likelihood confirmatory factor analyses using LISREL

Table 1

Background Information from Sample I (Respondents Identified)
And Sample II (Respondents Not Identified) Questionnaires

"Question"	Sample I (n=114)	Sample II (n=109)	Total (n=223)
Position[a]			
Administrator	76	79	155
Evaluator	49	31	80
Teacher	28	22	50
Other	25	6	31
Years Experience in Title I			
5 yrs or less	49	49	98
6 yrs - 10 yrs	32	29	61
more than 10 yrs	33	31	63
Highest Degree			
Doctorate	6	7	13
Specialist	20	22	42
Masters	61	56	117
Bachelor	27	24	51

[a]Respondents checked all that applied.

Table 2

Phase I Hypothetical Factor Scale Reliabilities

Hypothetical Factor	Number of Items	Reliability ES	Reliability IS
Relevance (R)	15	.88	.89
Credibility (Cr)	11	.81	.82
Communication (Co)	20	.88	.90
User Involvement (UI)	19	.91	.91

(Jöreskog and Sörbom, 1978). Both LISREL analyses resulted in significant χ^2's indicating that the four factor model, as specified, was not confirmed. These results were somewhat puzzling, VSS analyses indicated one large general factor dominated by User Involvement items, but also including Relevance and Communication items. It seemed quite possible that the LISREL models were misspecified.

Since the concept of a scale to measure evaluation utilization potential is relatively new, we felt additional, more exploratory, analyses should be conducted. These analyses are described in the next section on Phase II analyses.

Phase II analyses

The main concern of the Phase II analyses was to conduct exploratory factor analyses that would lead to a set of factors that could be confirmed in subsequent analyses. To accomplish this, we decided to randomly split the samples into two subsamples (Sample A and Sample B). Sample A would be used for exploratory analyses and Sample B would be used for confirmatory analyses. This decision created another problem, subsample n's would most likely be much too small to factor analyze the full 65-item set. It was decided to work with a 30-item subset.

Item Selection. To select the 30-item subset, we first had the 65-items independently classified into the four hypothetical factor categories (R, Cr, Co and UI) by three raters. A total of 60 items were assigned to the same hypothetical factor category by at least two of the raters while 27 of the items were assigned to the same category by all three raters. Twenty-seven items of the 30-item subset were those items assigned to a category by all three raters. Since only four User Involve-

ment (UI) items were within the 27 items, three additional UI items were selected at random from the items that two raters placed in the UI category. Some items were placed in categories different from their original category designation. Most of the 27 (23) were categorized by all three raters into their original category. The 30 items are given in Appendix B. Table 3 shows reliabilities for the Existence Scale hypothetical factors based on the 30-item subset.

Table 3

Phase II Hypothetical Factor Existence Scale Reliabilities for Subsample A, Subsample B and Total Sample

Hypothetical Factor	Number of Items	Subsample[a] A (109)	Subsample[a] B (114)	Total[a] Sample (223)
Relevance (R)	7	.80	.82	.81
Credibility (Cr)	6	.76	.77	.77
Communication (Co)	10	.82	.83	.82
User Involvement (UI)	7	.76	.75	.75

[a]Sample n's are given in parentheses.

Subsample A exploratory analyses. Exploratory common factor analyses using maximum likelihood procedures developed and described by Jöreskog and Van Thillo (1971) were done with data from Subsample A. Multiple R^2 coefficients were used for initial communality estimates. Since it was assumed that the hypothetical factors were correlated, oblique rotational procedures were employed. The SPSS Subprogram JFACTOR (Burns, 1977) was used for the exploratory analyses.

The JFACTOR program also prints results of three statistical tests to determine the suitability of a correlation matrix for factor analysis

(Dziuban and Shirkey, 1974). Bartletts's test of sphericity was rejected ($\chi^2_{435} = 1239.05$, $p<.001$) indicating the Subsample A correlation matrix was suitable for factoring. Inspection of the off-diagonal elements of the anti-image matrix showed 13.33 percent of the elements were greater than zero (>.09), small enough to indicate the matrix suitable for factoring. Finally, Kaiser's measure of sampling adequacy of .78 (almost the "meritorious" range in the .80s) indicating the matrix was suitable for factoring. (Dziuban and Shirkey provide a brief discussion of each test.)

Nine factors were extracted from the Subsample A correlation matrix before a nonsignificant Chi Square value was reached. (A significant Chi Square value indicates that a significant amount of variance remains in the residual correlation matrix.) The pattern matrix was rotated obliquely using the Kaiser Normalization procedure. Application of the Scree test (Gorsuch, pp. 152-156) and visual inspection of the rotated structure matrix indicated that at least five of the factors were interpretable. As a check that the rotated pattern matrix attained simple structure, the five criteria by Thurstone (Gorsuch, pp. 164-165) were applied. The results of the tests for simple structure are given in Table 4.

Table 4

Thurstone's Five Simple Structure Criteria
Results on Subsample A Rotated Pattern Matrix

Criteria	Met
1. Each variable has at least one zero loading.[a]	Yes
2. Each factor has at least one set of linearly independent variables with zero factor loadings.	Yes
3. For every pair of factors there are several variables whose loadings are zero on one factor but not the other.	58% of the factor pairs had 50% or more of the variables meet this criteria.
4. For every pair of factors a large proportion of variables have zero loadings on both whenever more than about four factors are present.	97% of the factor pairs had 20% or more of the variables with zero loadings on both factors.
5. For every pair of factors only a small number of variables should have nonzero loadings on both factors.	92% of the factor pairs had 20% or fewer of the variables with nonzero loadings on both factors.

[a]A zero loading was defined as any loading strictly less than .1 in absolute value.

The rotated pattern matrix appeared to meet the criteria for simple structure. The Subsample A correlation matrix, rotated factor pattern and structure matrices, and the factor correlation matrix are given in Appendix C.

The interpretation of factors found in Subsample A is based for the most part on the structure matrix (see Appendix C). This matrix gives the correlations between a variable and a factor.

The items in each of the four pre-determined categories (R, Cr, Co and UI) tended to correlate highly with one, and in some cases two, of the factors resulting from the analysis. Six of the seven User Involvement items correlated highly with the sixth factor of the nine factor configuration.

The Credibility items correlated highly for the most part with factors 1 and 3, having somewhat higher correlations on the average with factor 3.

The ten Communication items correlated most highly with factor 4, with a substantial number also correlating (though not as highly) with factor 6.

The fourth category of items, Relevance, seemed to be the most definitive in terms of the factor structure. These items clearly and nearly exclusively correlated on factor 5.

Hence, the oblique rotational procedures resulted in items within the categories correlating primarily with a total of five factors, with the remaining four factors being of relatively small significance.

The next step in the analysis, and often the most difficult one in factor analysis, was an attempt to draw an interpretation of the major resulting five factors in light of the four-item categories. In an effort to further interpretation of the factors, the content of each item was examined in relation to factors with which the item was highly correlated.

The first area for investigation of item content was for those items which correlated significantly with more than one factor. For example, the five items within the Communication category which correlated signifi-

cantly with both factors 4 and 6 were examined on item content. Four of these five items had correlated highly with factor 4 which, upon closer investigation of item content, could be interpreted as a "Communication" factor. Of the ten total Communication items, five items correlated significantly with factor 6, which appeared to be a "User Involvement" factor. The wording of the five items which overlapped factors 4 and 6 (Communication and User Involvement) was examined. In four of these five pre-categorized Communication items the words "used" or "useful" terms were found, indicating reason why some sampled respondents might have interpreted such items in a "user involvement" sense as well as in a "communication" sense.

The other item category which contained a number of items which correlated on more than one factor were the Credibility items--four of six correlating highly with both factors 1 and 3. An examination of the terminology for these four items which had correlated with factor 1 showed the use of "decison-making" terms within the content of each item. Since factor 3 had been temporarily termed the "Credibility" factor, it seemed worthy to examine the content of items which correlated only with factor 1 and no other factors, and those Credibility items which did not correlate with factor 1. Other items which correlated with factor 1, and not with other factors, had similar "decision-making" terminology within them. Factor 1, therefore, seemed to be interpretable as a Decision-Making factor, different from the four pre-determined categories. Those Credibility items which did not correlate with the Decision-Making factor 1 did not contain terminology mentioning "decisions," but rather could be termed "pure" Credibility items.

In summary, the exploratory analysis on Subsample A produced a nine-factor structure. Four of these factors were relatively minor in terms of the number of items within any of the four pre-determined categories which correlated highly on any one of the factors, i.e. item correlations with these four factors were generally smaller and dispersed across all four pre-determined categories of items (R, Cr, Co and UI). The interpretation of the exploratory factor analysis is that the four pre-determined categories of items correlated differentially primarily on five factors, which upon examination of the items with respect to the factors resulted in the factors being interpreted as Relevance, Credibility, Communication, User Involvement and Decision-Making.

Subsample B confirmatory analyses. The program LISREL (Jöreskog and Sörbom, 1978) was used for confirmatory analyses. Basically, by using the Subsample A pattern matrix and factor correlation matrix (see Appendix C) with the Subsample B correlation matrix a maximum likelihood test on the residual matrix is available. The relationship between the matrices is shown below.

$$\underset{\sim}{\Sigma} = \underset{\sim}{\Lambda}_y \underset{\sim}{B}^{-1} \underset{\sim}{\Psi} \underset{\sim}{B}'^{-1} \underset{\sim}{\Lambda}'_y + \underset{\sim}{\Theta}_\varepsilon$$

Where $\underset{\sim}{\Sigma}$ for our case is the correlation matrix determined by the factor pattern matrix ($\underset{\sim}{\Lambda}_y$), the interfactor correlation matrix ($\underset{\sim}{\Psi}$) and the error matrix ($\underset{\sim}{\Theta}_\varepsilon$). $\underset{\sim}{B}$ is an identity matrix. The maximum likelihood test performed is on $\underset{\sim}{S} - \underset{\sim}{\Sigma}$ where $\underset{\sim}{S}$ is the Subsample B correlation matrix and $\underset{\sim}{\Sigma}$ is estimated from the above equation. A nonsignificant χ^2 indicates the results from Subsample A were confirmed on Subsample B.

When estimates for both $\underset{\sim}{\Lambda}_y$ and $\underset{\sim}{\Psi}$ were fixed and taken from Subsample A results, a most stringent test, the factor pattern and correlations

were not confirmed (χ^2_{ms} 717.41, p<.0000). This test required confirmation of both the factor pattern and the intercorrelation among factors.

When only estimates for Δ_y were fixed, the test, if nonsignificant, would confirm the Subsample A factor pattern, but not the intercorrelation among factors. This test also did not confirm the Subsample A pattern matrix (χ^2_{ms} 585.21, p<.0000). Other, less restricted confirmatory analyses (e.g., Δ_y estimates only partially fixed) are currently being considered.

Discussion, Summary and Implications

Based on the Leviton and Hughes' conceptualization of variable clusters that affect utilization, a procedure for measuring utilization potential was described. Preliminary results of the pilot effort, within the context of Title I evaluation utilization, were presented.

Maximum likelihood factor analyses using a subset of items with a random half of the data base clearly indicated that a set of correlated factors related to the Leviton and Hughes' factor conceptualization were found. Additionally, a decision-making factor also appeared that may have been due to the wording of some items.

The exploratory factor analysis results were not confirmed on a second sample. However, this should not be taken as an indication that either the Leviton and Hughes conceptualization was not confirmed or that an instrument for measuring utilization potential is not possible. By splitting the sample, our effective n's became quite small for the application of factor analytic techniques. When sample size is considered, we feel the results are highly suggestive. The possibility of developing a scale

to assess utilization potential is very real and its development would provide a powerful methodological tool for utilization research and for identifying areas where training might increase utilization.

References

Alkin, Marvin C., Daillak, Richard, and White, Peter. Using Evaluations: Does Evaluation Make a Difference? Beverly Hills, CA: Sage Publications, Inc., 1979.

Burns, Phillip. SPSS Subprogram JFACTOR-Jöreskog Factor Analysis. Evanston, IL: Northwestern University, 1977.

Caplan, Nathan. Social research and national policy: What gets used, by whom, for what purpose, and with what effects? In Stuart S. Nagel (Ed.), Policy Studies Review Annual, (Vol. 1). Beverly Hills, CA: Sage Publications, Inc., 1977. (Reprinted from International Social Science Journal, 1976, 28.)

David, Jane L. Local Uses of Title I Evaluations. (Research Report EPRC 21), Menlo Park, CA: SRI International, July, 1978.

Dziuban, Charles D. and Shirkey, Edwin C. When is a correlation matrix appropriate for factor analysis? Psychological Bulletin, 1974, 81, (6), 358-361.

Haenn, Joseph F. Reasons why evaluations and testing don't inform. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, MA: April, 1980.

Hansen, Joe B., Martin, Joy M. and Oxford, Rebecca L. The Use of Evaluation: An Analytical Review. Region VIII TAC, Portland, OR: Northwest Regional Educational Laboratory, 1979.

Jöreskog, Karl G. and Sörbom, Dag. LISREL IV User's Guide. Chicago: International Educational Services, 1980.

Jöreskog, Karl G. and Van Thillo, Marielle. New rapid algorithms for factor analysis by unweighted least squares, generalized least squares and maximum likelihood. Educational Testing Service, Research Bulletin 71-5.

Leviton, Laura C. and Hughes, Edward F. X. A review and synthesis of research on the utilization of evaluations. Evaluation Review, 1981, 5, (4), 525-548.

Patton, Michael Q. Utilization-Focused Evaluation. Beverly Hills, CA: Sage Publications, Inc., 1978.

Revelle, William and Rocklin, Tom. VSIMPL. Unpublished manuscript, 1979.

Appendix A

Summary of Utilization Factors
Instructions for Developing Item Concepts
Utilization of Evaluation Information Matrix

Summary of Utilization Factors

Leviton and Hughes (1980) have proposed a five factor structure for the construct of utilization. Although it is possible to question any or all of the proposed factors, we believe that our goal of measuring utilization will be more readily achieved by using a relatively concise conceptualization of the construct than by attempting to employ one of the more elaborate models described in the literature.

As described by Leviton and Hughes, each of the five factors associated with evaluation utilization is comprised of a cluster of discrete variables. We have chosen to paraphrase, and call these variables "facilitating conditions":

Factor	Facilitating Conditions
1. Relevance	a. Evaluation addresses client needs; i.e. in a Title I program, evaluation data are perceived as relevant to information needs of teachers, program people, and administrators.
	b. Evaluations provide timely information, i.e. data are available when needed for decision making.
2. Communication	a. There is formal and informal interaction between evaluator and users of evaluation information (teachers, program people, administrators).
	b. As information filters through the bureaucratic hierarchy, no information is distorted or omitted.
	c. The evaluation information communicated to each user is specific to his/her needs.
	d. The information communicated to each user is in a form he/she can readily assimilate.
3. Credibility	a. Information from evaluation is seen as an important part of the total knowledge base on which decisions are based.
	b. Information users have confidence in the evaluation findings.
4. User Involvement and Advocacy	a. Key personnel have a sense of ownership of the evaluation results, and believe that results will validly inform decision-making.
	b. Information users are willing to seriously consider evaluation results in the context of their decision-making.

A fifth factor, "Information Processing", is described to include such conditions as clarity of reports, and unique characteristics of information required by different decision-makers. We feel there is much overlap with "Communication" in this factor, and so have elected to omit Information Processing from our schema of Utilization structure.

The four factor structure we have chosen to represent the notion of evaluation utilization can be used, therefore, to develop a measurable definition of utilization. We propose the following definition:

Evaluation utilization occurs when decisions are made in the context of:

1. Belief in the relevance of evaluation information
2. Awareness of the importance of communicating evaluation results to all potential users
3. Faith in the credibility of the data, and
4. User involvement and advocacy of evaluation as decision-making tool.

Instructions for Developing Item Concepts

The Region V TAC used a modified Nominal Group Technique (NGT) as described by Delbecq et al (1975) to generate items for the four columns and five rows of the matrix. Based upon our experience with this method of item concept generation, we offer the following suggestions for a procedure to be used by all TACs.

1. Appoint one person to assume responsibility for coordinating the item concept writing effort. This person should carefully read the position paper, identify persons to participate in item concept writing, distribute copies of paper to identified writers, chair two meetings of writers, and send in the resulting item concepts to Region V.

   We suggest that each TAC focus on writing item concepts for two columns (to be decided at this TAC Directors' Meeting) of the matrix. Each individual item writer should write items for only one column.

2. The item writing coordinator should convene a meeting to explain the model and the nature of the proposed instrument. This will involve:

   a. describing the four factor model derived from the Leviton and Hughes paper;
   b. describing the five Title I decision areas;
   c. displaying the matrix, and sample item concepts for one column (provided);
   d. describing the two scales on which LEA respondents will be asked to rate each item. Namely, an LEA Title I Evaluator and/or Title I Program Administrator will be asked to rate the extent to which the condition described in the item exists in his/her district, and also to rate the extent to which Technical Assistance would be welcomed to facilitate the described condition;
   e. assigning one column to each individual item writer.

3. Item concept writing may be done in the meeting, or individually. Our experience suggests that individual item concept writing might be most efficient, once all participants fully understand the task.

4. All items should be returned to the Coordinator who will have them typed and copies made for each item concept writer.

5. At a second meeting, items are discussed and ranked, by matrix cell. Duplicate items and/or related concepts may be eliminated or combined and the list refined prior to ranking.

6. All item concepts, ranked in the second meeting, should be returned to Laura Crane, Region V, by November 3, 1980.

Matrix Column 3: EVALUATION CREDIBILITY

DECISION AREA	ITEMS (write two for each decision area)
1. Funds Allocation	1. Title I Evaluation Data is an important info source in grade allocation of Title I funds.
2. Program Adoption or change	1. Title I Evaluation Data is usually a very accurate source in pinpointing program problems. 2. Title I Evaluation Data is normally considered in the context of program planning.
3. Staffing	1. Title I Evaluation Data provides an accurate assessment of staffing problems.
4. Student Selection	1. Student test data is a major basis (but not only basis) for project selection.
5. Test Selection	1. Title I tests are routinely examined for appropriateness to program goals. 2. Title I test results are routinely examined for validity (Proper levels administered, etc.)

UTILIZATION OF EVALUATION INFORMATION
ITEM MATRIX

DECISION AREA	FACTOR			
	Relevance	Communication	Credibility	User Involvement
Funds Allocation				
Program Adoption or Change				
Staffing				
Student Selection				
Test Selection				

Appendix B

30-Item Subset
Relevance
Credibility
Communication
User Involvement

RELEVANCE

5. EVALUATION DATA ARE USED TO DECIDE WHICH TEST BEST MATCHES THE OBJECTIVES OF THE PROJECT.

7. STAFF WHO ADMINISTER AND USE TESTS CHECK WHETHER OR NOT THE TEST CONTENT MATCHES INSTRUCTION BEFORE SELECTING TESTS.

13. STUDENT PERFORMANCE DATA ARE AVAILABLE IN TIME TO ASSIST IN STUDENT SELECTION.

24. TITLE I EVALUATION REPORTS ARE RECEIVED IN TIME TO ASSIST ADMINISTRATORS IN MAKING DECISIONS ABOUT CHANGING THE PROJECT(S).

30. EVALUATION DATA ARE AVAILABLE IN TIME TO BE USEFUL IN DECISIONS CONCERNING TEST SELECTION CHANGES.

33. EVALUATION INFORMATION FROM THE PREVIOUS YEAR IS AVAILABLE IN TIME TO INFORM THE FOLLOWING YEAR'S FUNDS ALLOCATION DECISIONS.

40. EVALUATION DATA ARE AVAILABLE WHEN STAFFING DECISIONS ARE BEING MADE.

CREDIBILITY

3. TITLE I EVALUATION PROVIDES A SUFFICIENTLY CREDIBLE SOURCE OF INFORMATION TO BE CONSIDERED WHEN FUNDING DECISIONS ARE BEING MADE.

10. EVALUATION USERS HAVE CONFIDENCE IN THE QUALITY OF THE EVALUATION DATA USED IN MAKING FUNDING DECISIONS.

27. EVALUATION DATA ARE CONSIDERED SUFFICIENTLY VALID FOR MAKING DECISIONS ABOUT THE HIRING OF AIDES.

32. PROGRAM PLANNERS BELIEVE THAT EVALUATION DATA ACCURATELY REFLECT THE STATUS OF A PROJECT.

58. TITLE I STUDENTS ARE SELECTED WITH CONFIDENCE ON THE BASIS OF EVALUATION DATA.

63. EVALUATION DATA ARE CONSIDERED A SUFFICIENTLY CREDIBLE SOURCE OF INFORMATION FOR MAKING DECISIONS ABOUT ONE METHOD OF INSTRUCTION VS. ANOTHER.

COMMUNICATION

21. TEACHERS ROUTINELY RECEIVE EVALUATION INFORMATION ABOUT THE OVERALL IMPACT OF THEIR TITLE I PROJECT.

28. A DESCRIPTION OF DISTRICT TEST SELECTION PROCEDURES IS AVAILABLE TO ANYONE INTERESTED.

29. PARENTS UNDERSTAND HOW THE STUDENT SELECTION PROCESS WORKS.

31. PARENTS ARE AWARE OF HOW EVALUATION RESULTS ARE USED IN PROGRAMMATIC DECISIONS.

34. TEACHERS UNDERSTAND THE IMPORTANCE OF ADHERING TO THE TITLE I EVALUATION AND REPORTING SYSTEM REQUIREMENTS FOR STUDENT SELECTION.

35. EVALUATION DATA ARE PRESENTED IN A FORM WHICH IS USEFUL FOR PROJECT PLANNING.

39. MEETINGS ARE CONDUCTED TO MAKE SURE THAT STUDENT SELECTION CRITERIA ARE CLEARLY DEFINED AND UNDERSTOOD BY ALL APPROPRIATE PERSONNEL.

49. TITLE I ADMINISTRATORS KNOW HOW EVALUATION RESULTS CAN BE USED TO DETERMINE IF A NEW TEST IS NEEDED.

53. EVALUATION INFORMATION USEFUL FOR FUNDING DECISIONS IS PRESENTED IN AN UNDERSTANDABLE FASHION.

56. PROJECT ADMINISTRATORS COMMUNICATE STAFF ALLOCATION POLICY TO TEACHERS.

USER INVOLVEMENT

2. USERS OF TEST INFORMATION ARE PERIODICALLY ASKED FOR THEIR REACTIONS TO THE TESTS IN USE.

8. PROJECT ADMINISTRATORS ARE ROUTINELY INVOLVED IN EVALUATION PLANNING SO THE EVALUATION WILL ADDRESS THEIR SPECIFIC NEEDS.

15. TITLE I TEACHERS HAVE ACCESS TO DECISION-MAKERS TO VOICE THEIR SUGGESTIONS FOR PROJECT CHANGES.

37. TITLE I STAFF REVIEW EVALUATION RESULTS FOR PURPOSES OF ALLOCATING PROJECT FUNDS TO DIFFERENT PROJECT COMPONENTS.

43. PERSONS RESPONSIBLE FOR FUNDING DECISIONS ARE ROUTINELY INVOLVED IN EVALUATION PLANNING ACTIVITIES.

57. PROJECT DECISION-MAKERS ARE WILLING TO SPEND THE TIME REQUIRED TO INSURE THE USEFULNESS OF EVALUATIONS FOR THEIR NEEDS.

61. PERSONS RESPONSIBLE FOR MAKING PROJECT CHANGE DECISIONS ARE FORMALLY INVOLVED IN EVALUATION PLANNING ACTIVITIES.

Appendix C

Subsample A Correlation Matrix
Subsample A Pattern Matrix
Subsample A Structure Matrix
Subsample A Factor Correlations

Subsample A Correlation Matrix (W=83)

	I2E	I8E	I15E	I37E	I43E
I2E	1.00000	.28319	.09362	.25944	.15940
I8E	.28319	1.00000	.38100	.26891	.48381
I15E	.09362	.38100	1.00000	.25859	.47300
I37E	.25944	.26891	.25859	1.00000	.31392
I43E	.15940	.48381	.47300	.31392	1.00000
I57E	.16188	.35059	.50321	.32056	.50205
I61E	.15917	.40694	.32430	.18022	.60870
I21E	.09009	.22747	.27829	.25646	.21183
I28E	.12373	.27642	.09500	.31700	.26087
I29E	.02050	.04248	-.02153	.03688	.09884
I31E	.17296	.33595	.18992	.25985	.32487
I34E	.06154	.09629	.32610	.22156	.24568
I35E	.18592	.36343	.29494	.50100	.37686
I39E	.23586	.04871	.19798	.16377	.14642
I49E	.06704	.42460	.35252	.26562	.24818
I53E	.12017	.41657	.35837	.43673	.46538
I56E	.14196	.33035	.42611	.39989	.51117
I3E	.05931	.39976	.33943	.21256	.36411
I10E	.08098	.41755	.36522	.25033	.39097
I27E	-.03724	.34117	.21696	.51334	.24200
I32E	.12682	.30935	.31597	.41976	.30057
I58E	-.09252	.11846	.26054	.16447	.27689
I63E	.18731	.22803	.21617	.37448	.10599
I5E	.26162	.30035	.24024	.39900	.02690
I7E	.33439	.35286	.17277	.30258	.09488
I13E	.25482	.03572	.35684	.37211	.19888
I24E	.12684	.18573	.10714	.43024	.10667
I30E	.12713	.28122	.21767	.41211	.18250
I33E	.03431	.12045	.14702	.39698	.23696
I40E	.25893	.24323	.16975	.46600	.36867

	I57E	I61E	I21E	I28E	I29E
I2E	.16188	.15917	.09009	.12373	.02050
I8E	.35059	.40694	.22747	.27642	.04248
I15E	.50321	.32430	.27829	.09500	-.02153
I37E	.32056	.18022	.25646	.31700	.03688
I43E	.50205	.60870	.21183	.26087	.09884
I57E	1.00000	.31190	.39752	.22525	.28714
I61E	.31190	1.00000	.17675	.24260	.19820
I21E	.39752	.17675	1.00000	.24285	.26263
I28E	.22525	.24260	.24285	1.00000	.09329
I29E	.28714	.19820	.26263	.09329	1.00000
I31E	.33811	.39076	.34253	.27949	.61728
I34E	.28573	.31163	.34434	.11418	.14713
I35E	.51033	.23143	.33404	.23400	.18624
I39E	.29495	.26246	.18763	.14195	.34260
I49E	.43911	.24253	.53866	.37967	.06052
I53E	.52885	.30830	.37175	.37719	.19951
I56E	.50200	.43979	.35288	.28701	.24933
I3E	.46594	.29517	.25194	.14623	.00260
I10E	.38056	.36208	.32070	.21306	.13006
I27E	.31818	.15112	.18407	.09544	-.01756
I32E	.23705	.30510	.28063	.43410	.07845
I58E	.27243	.33357	.25325	.25078	.19394
I63E	.35993	.21182	.20084	.13482	.15806
I5E	.25950	.14475	.22635	.14246	.09616
I7E	.18065	.23659	.16511	.13883	.22118
I13E	.36044	.14881	.19344	.24507	.12623
I24E	.27399	.23538	.34950	.34863	-.01129
I30E	.38777	.20260	.35276	.38391	.04949
I33E	.25533	.19415	.23055	.30882	-.02172
I40E	.47958	.24966	.22940	.42542	.14844

	I31E	I34E	I35E	I39E	I49E
I2E	.17296	.06154	.18592	.23586	.06704
I8E	.33595	.09629	.36343	.04871	.42460
I15E	.18992	.32610	.29494	.19798	.35252
I37E	.25985	.22156	.50100	.16377	.26562
I43E	.32487	.24568	.37686	.14642	.24816
I57E	.33811	.28573	.51033	.29495	.43911
I61E	.39076	.31163	.23143	.26246	.24253
I21E	.34253	.34434	.33404	.18763	.53866
I28E	.27949	.11418	.23400	.14195	.37967
I29E	.61728	.14713	.18624	.34260	.06052
I31E	1.00000	.26155	.38852	.31748	.37328
I34E	.26155	1.00000	.26965	.23708	.37700
I35E	.38852	.26965	1.00000	.29898	.40053
I39E	.31748	.23708	.29898	1.00000	.06976
I49E	.37328	.37700	.40053	.06976	1.00000
I53E	.32087	.36290	.59337	.32472	.47665
I56E	.40441	.35555	.49547	.37022	.29809
I3E	.25914	.16742	.41475	.01114	.31710
I10E	.22207	.33490	.45872	.10187	.50159
I27E	.09350	.25388	.41825	.19561	.35548
I32E	.21228	.19527	.40261	.12814	.27614
I58E	.28013	.23869	.22250	.16252	.26215
I63E	.21453	.35605	.29348	.23440	.29202
I5E	.25067	-.01496	.27416	.07234	.27098
I7E	.38232	.24624	.20200	.09725	.26847
I13E	.25151	.15197	.35743	.25357	.21128
I24E	.23659	.16992	.32523	.03440	.36735
I30E	.22198	.14524	.36162	.18591	.38858
I33E	.03336	.13820	.32406	-.03832	.28401
I40E	.29354	.10572	.49300	.24455	.34953

	I53E	I56E	I3E	I10E	I27E
I2E	.12017	.14196	.05931	.08098	-.03724
I8E	.41657	.33035	.39976	.41755	.34117
I15E	.35837	.42611	.33943	.36522	.21696
I37E	.43673	.39989	.31256	.25033	.31334
I43E	.46538	.51117	.36411	.39097	.24200
I57E	.52885	.50200	.46594	.38056	.31818
I61E	.30830	.43979	.29517	.36208	.15112
I21E	.37175	.35288	.25194	.32070	.18407
I28E	.37719	.28701	.14623	.21306	.09544
I29E	.19951	.24933	.00260	.03006	-.01786
I31E	.32087	.40441	.25914	.22207	.09350
I34E	.36290	.35555	.16742	.33490	.25388
I35E	.59337	.49547	.41475	.45872	.41825
I39E	.32472	.37022	.01114	.10187	.19561
I49E	.47665	.29809	.31710	.50159	.35548
I53E	1.00000	.53128	.59819	.50131	.50849
I56E	.53128	1.00000	.28681	.31481	.19318
I3E	.59819	.28681	1.00000	.55461	.40390
I10E	.50131	.31481	.55461	1.00000	.40504
I27E	.50849	.19318	.40390	.40504	1.00000
I32E	.39669	.32575	.26998	.28703	.30677
I58E	.36079	.30843	.32049	.51438	.29499
I63E	.26337	.30315	.22350	.33729	.39243
I5E	.11673	.14196	.36452	.30764	.23052
I7E	.18068	.17607	.20288	.14547	.08627
I13E	.16421	.18075	.27543	.29912	.14460
I24E	.17200	.20123	.27499	.30974	.31077
I30E	.32127	.32305	.31314	.36900	.39240
I33E	.23403	.19232	.22379	.26573	.42428
I40E	.44678	.33258	.34670	.41474	.29716

	I32E	I58E	I63E	I5E	I7E
I2E	.12682	-.09252	.18731	.26162	.33439
I8E	.30935	.11846	.22803	.30035	.35286
I15E	.31597	.26054	.21617	.24024	.17277
I37E	.41976	.16447	.37448	.39900	.30258
I43E	.30057	.27689	.10599	.02690	.09488
I57E	.23705	.27243	.35993	.25950	.18065
I61E	.30510	.43357	.21182	.14475	.23659
I21E	.28083	.25325	.20084	.22635	.16511
I28E	.43410	.25078	.13482	.14246	.13883
I29E	.07845	.19394	.05806	.09616	.22118
I31E	.21228	.28013	.21453	.25067	.38232
I34E	.19527	.23859	.35005	-.01496	.24624
I35E	.40261	.22250	.29348	.27416	.20200
I39E	.12814	.16252	.23440	.07234	.09725
I49E	.27614	.26215	.29202	.27098	.26847
I53E	.39669	.36079	.26337	.11673	.18068
I56E	.32575	.30843	.30315	.14196	.17607
I3E	.26998	.32049	.22350	.36452	.20288
I10E	.28703	.51438	.33729	.30764	.14547
I27E	.30677	.29499	.39249	.23052	.18627
I32E	1.00000	.31855	.31786	.13186	.10730
I58E	.31855	1.00000	.30589	.04944	-.01006
I63E	.31786	.30589	1.00000	.15169	.10314
I5E	.13186	.04944	.15169	1.00000	.58530
I7E	.10730	-.01006	.10314	.58530	1.00000
I13E	.30590	.18987	.19591	.33941	.09742
I24E	.35726	.27990	.35377	.28468	.29134
I30E	.39942	.18422	.30475	.48820	.32331
I33E	.39421	.21588	.05917	.23190	.17476
I40E	.26900	.34900	.25079	.20319	.18665

	I13E	I24E	I30E	I33E	I40E
I2E	.25482	.12684	.12713	.03431	.25893
I8E	.03572	.18573	.28122	.12045	.24323
I15E	.35684	.10714	.21767	.14702	.16975
I37E	.37211	.43024	.41211	.39698	.46600
I43E	.19688	.10667	.18250	.23696	.36867
I57E	.36044	.27399	.38777	.25533	.47958
I61E	.14881	.23538	.20260	.19415	.24966
I21E	.19344	.34950	.35276	.23055	.22940
I28E	.24507	.34863	.38391	.30882	.42542
I29E	.12623	-.01129	.04949	-.02172	.14844
I31E	.25151	.23659	.22198	.03336	.29354
I34E	.15197	.16992	.14524	.13820	.10572
I35E	.35743	.32523	.36162	.32406	.49300
I39E	.25357	.03440	.18591	-.03832	.24455
I49E	.21128	.36735	.38858	.28401	.34953
I53E	.16421	.17200	.32127	.23403	.44078
I56E	.18075	.20123	.32305	.19232	.33253
I3E	.27543	.27499	.31314	.22379	.34670
I10E	.29912	.30974	.36900	.26573	.41474
I27E	.14460	.31077	.39240	.42428	.29716
I32E	.30590	.35726	.39942	.39421	.26900
I58E	.18987	.27990	.18422	.21588	.34900
I63E	.19591	.35377	.30475	.05917	.25079
I5E	.33941	.28468	.48820	.23190	.20319
I7E	.09742	.29134	.32331	.17476	.18665
I13E	1.00000	.33916	.35931	.21225	.39610
I24E	.33916	1.00000	.65308	.67215	.45956
I30E	.35931	.65308	1.00000	.54382	.35952
I33E	.21225	.67215	.54382	1.00000	.34811
I40E	.39610	.45956	.35952	.34811	1.00000

FILE - SAMEUS (CREATED - 01/28/82)

OBLIQUE FACTOR PATTERN MATRIX
AFTER ROTATION WITH KAISER NORMALIZATION

DELTA = 0

Subsample A Pattern Matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
I2E	.00195	.16067	-.14166	.05408	.04186
I8E	.13670	.20384	-.07970	-.21207	-.02586
I15E	.05896	.08424	-.05012	-.18669	-.13645
I37E	.26338	.15498	-.19323	.05781	.30949
I43E	.09355	-.15526	.09586	.01535	.03256
I57E	.17036	.00817	-.13114	-.20040	.00966
I61E	-.08666	.06178	-.06942	.04438	.10872
I21E	.04640	.03704	.00941	-.43853	.13894
I28E	.15284	-.04420	.05721	-.21448	.31429
I29E	.00571	.05616	.05154	.01026	-.07398
I31E	-.10278	.12262	-.03337	-.22300	.04332
I34E	.07905	-.15463	-.25458	-.26218	-.00368
I35E	.35983	.02296	-.04641	-.13096	.15023
I39E	.19300	-.05705	-.13218	.06613	-.07462
I49E	-.01158	.04465	-.04043	-1.00598	.01129
I53E	.94803	-.07377	.02985	-.14525	-.02464
I56E	.72823	-.06430	-.10654	-.03458	.04268
I3E	.52073	.27598	-.01122	.03635	.04292
I10E	.21680	.18963	-.13259	-.21366	.02075
I27E	.40605	.07060	-.24097	-.07359	.15318
I32E	.17261	-.06740	-.16110	-.00738	.30806
I58E	.09677	-.01649	-.16466	.01862	.12698
I63E	-.06507	-.01195	-1.04658	-.01854	-.01270
I5E	.01326	.97369	.00367	-.03060	-.02262
I7E	.02680	.54796	.02112	-.08894	.13846
I13E	-.10208	.11844	-.02188	-.04237	.19438
I24E	-.15657	.02226	-.18183	-.04788	.91535
I30E	.08074	.25663	-.09402	-.07724	.53569
I33E	.04839	.00247	.15306	-.01509	.76842
I40E	.17238	-.04877	-.02243	-.08134	.35905

	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
I2E	.15301	.05640	-.34743	.03437
I8E	.48301	-.09395	-.12484	-.19421
I15E	.39469	-.12170	.01586	.32239
I37E	.03942	-.02137	-.23155	.17555
I43E	.87653	-.03231	-.05449	.15134
I57E	.21534	.12212	-.03579	.33855
I61E	.69209	.17079	.19004	-.10099
I21E	-.05179	.19371	.04690	.10745
I28E	.06274	.10276	-.05838	-.01832
I29E	-.04088	.83130	.07339	.01836
I31E	.20026	.66504	.08509	-.05753
I34E	.10404	.12622	.02999	-.03789
I35E	.06120	.13173	-.09328	.22702
I39E	-.02855	.42054	-.08470	.19765
I49E	-.04851	-.09001	.02073	.00040
I53E	.01808	.13275	.00960	-.09600
I56E	.33594	.23263	-.08174	.13619
I3E	.14651	-.06316	.24335	.01122
I10E	.19829	-.10671	.40327	.10188
I27E	-.04740	-.18004	.07724	.03261
I32E	.14326	.00969	.00391	.06411
I58E	.16108	.19220	.61244	.03914
I63E	-.07703	-.03709	.02089	-.00781
I5E	-.09588	.01294	.00684	.20727
I7E	.07283	.22966	-.20198	-.24793
I13E	.00380	.10191	.02493	.56406
I24E	-.05495	-.00562	.05743	-.05428
I30E	-.06594	-.01811	-.02247	.11132
I33E	.06117	-.13958	.03570	.07255
I40E	.09846	.11176	.00692	.21225

User Involvement

Communication

Credibility

Relevance

Subsample A Structure Matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
I2E	.13625	.26650	-.22072	-.07769	.14524
I8E	.39134	.35752	-.29127	-.43602	.21837
I15E	.37237	.19682	-.27001	-.36311	.14621
I37E	.49103	.35477	-.42883	-.26278	.51474
I43E	.45021	.03624	-.20006	-.29748	.21757
I57E	.52101	.18759	-.42531	-.46556	.32143
I61E	.26178	.19311	-.27981	-.27942	.26002
I21E	.31467	.18453	-.23607	-.55437	.35477
I28E	.34564	.13071	-.17845	-.39515	.42820
I29E	.09517	.07286	-.09874	-.13203	.11390
I31E	.20466	.25538	-.27461	-.43627	.23629
I34E	.30648	-.02513	-.38395	-.39704	.17003
I35E	.59642	.21043	-.36061	-.42263	.41375
I39E	.26869	.01394	-.27532	-.11337	.17084
I49E	.38072	.24787	-.31835	-.99280	.36635
I53E	.97485	.08858	-.35189	-.51011	.29448
I56E	.50452	.11209	-.37761	-.34200	.27244
I3E	.63266	.35216	-.28497	-.31231	.31829
I10E	.50549	.28193	-.38132	-.49037	.33310
I27E	.54846	.19983	-.42560	-.33479	.37859
I32E	.40611	.10811	-.36135	-.28278	.44211
I58E	.33156	.02658	-.33522	-.27278	.28501
I63E	.27993	.12692	-.99155	-.26672	.24201
I5E	.19023	.97646	-.15604	-.23536	.30413
I7E	.15725	.64105	-.14766	-.27488	.29954
I13E	.20480	.23134	-.22833	-.21557	.37468
I24E	.18666	.27801	-.37177	-.34342	.91509
I30E	.35954	.45393	-.34282	-.36892	.69972
I33E	.27301	.21230	-.09366	-.26668	.76562
I40E	.44948	.14769	-.30550	-.36560	.52423

	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
I2E	.22062	.15299	-.36561	.11834
I8E	.61007	.08946	-.10071	-.07930
I15E	.52039	.06381	.05027	.41268
I37E	.30450	.14367	-.22133	.39276
I43E	.87947	.17404	.00890	.30962
I57E	.49051	.32069	.00004	.51776
I61E	.72324	.30526	.19476	.07312
I21E	.22646	.31040	.07805	.24764
I28E	.26755	.20675	-.01747	.15346
I29E	.12952	.80464	.00555	.10865
I31E	.41811	.75196	-.02900	.11087
I34E	.29693	.24948	.07939	.11245
I35E	.38033	.29843	-.06083	.44534
I39E	.16748	.48081	-.09942	.31196
I49E	.31081	.12002	.11425	.14909
I53E	.45347	.29244	.07113	.23627
I56E	.54723	.39905	-.05370	.34210
I3E	.41682	.06035	.24338	.23644
I10E	.45762	.05006	.43024	.28873
I27E	.23725	-.03848	.11752	.24488
I32E	.33679	.14146	.04426	.26057
I58E	.34411	.25168	.62097	.20601
I63E	.19109	.14694	.04089	.19975
I5E	.14337	.10088	-.11076	.28726
I7E	.24263	.29803	-.27423	-.09773
I13E	.17954	.21100	.01871	.62031
I24E	.15180	.09231	.08867	.17224
I30E	.20987	.11080	-.02075	.31846
I33E	.20152	-.05452	.07982	.24266
I40E	.34435	.24934	.04478	.40860

Subsample A Factor Correlations

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
FACTOR 1	1.00000	.14801	-.36633	-.39874	.32000
FACTOR 2	.14801	1.00000	-.16173	-.21247	.28732
FACTOR 3	-.36633	-.16173	1.00000	.30174	-.28196
FACTOR 4	-.39874	-.21247	.30174	1.00000	-.35216
FACTOR 5	.32000	.28732	-.28196	-.35216	1.00000
FACTOR 6	.42161	.19154	-.28952	-.35843	.22706
FACTOR 7	.16271	.07606	-.20330	-.20996	.10789
FACTOR 8	.05199	-.13004	-.02048	-.09420	.04017
FACTOR 9	.32374	.09617	-.23869	-.15674	.25616

	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
FACTOR 1	.42161	.16271	.05199	.32374
FACTOR 2	.19154	.07606	-.13004	.09617
FACTOR 3	-.28952	-.20330	-.02048	-.23869
FACTOR 4	-.35843	-.20996	-.09420	-.15674
FACTOR 5	.22706	.10789	.04017	.25616
FACTOR 6	1.00000	.22393	.04104	.18878
FACTOR 7	.22393	1.00000	-.06549	.14733
FACTOR 8	.04104	-.06549	1.00000	.01550
FACTOR 9	.18878	.14733	.01550	1.00000